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FOOD PRODUCTS

Served by the

UNITED STATES DEPARTMENT OF AGRICULTURE

to the

STATE DIRECTORS OF EXTENSION

February 2, 1921.

(1) Ice cream, Dairy Division, Bureau of Animal Industry.

One lot of the ice cream to be served tests 14 per cent fat, the other about 8 per cent fat, representing roughly the difference between average homemade and average commercial ice cream.

The usual portion of ice cream served to one person is  $\frac{1}{6}$  of a quart. This is about 3 ounces of ice cream. The amount of nourishment in such a portion is small, even in case of creams testing 14 per cent fat. The three ounce portion of such an ice cream contains approximately  $\frac{1}{2}$  ounce of fat,  $\frac{1}{2}$  ounce of sugar, and  $\frac{1}{6}$  ounce of milk solids not fat - and represents, roughly, 190 calories.

A wholesome grade of ice cream may be safely served often and liberally, because many children and adults will easily eat a pound of ice cream a day, and sometimes more. The grade of ice cream that is served is probably the chief factor which determines the quantity that may be eaten without ill effect.

(2) Jelly roll, Office of Home Economics, States Relations Service.

This cake was made from potato flour; the jelly was made in the course of certain investigations concerning the increased yield of jelly made possible by the use of apple pectin sirups added to the juices of fruits less rich in pectin.

(3) Frosted cakes, Office of Home Economics.

Half of these cakes were made with lard used as shortening, half with vegetable oil (cotton-seed oil) used as shortening instead of butter or butter substitute.

(4) Ginger snaps, Office of Home Economics.

Made from sweet potato sirup instead of molasses. This sirup was made in the Fruit and Vegetable Utilization Laboratory, Bureau of Chemistry.

(5) Candy, Carbohydrate Laboratory, Bureau of Chemistry.

Made from sweet potato sirup furnished by Fruit and Vegetable Utilization Laboratory, Bureau of Chemistry.

Caramels.

3 ounces sugar	1 ounce butter
6 ounces sweet potato sirup	6 ounces evaporated milk
1/4 teaspoon salt.	

Stir and cook to a stiff ball, add a teaspoon of vanilla extract, pour on greased slab, when cold cut in pieces and wrap in waxed paper.

Chewy Kisses.

4 ounces sugar	6 ounces sweet potato sirup
1 ounce butter	Little water to dissolve sugar.

Stir and cook to a hard ball, pour on greased slab, when cool enough to handle, flavor with peppermint and pull on hook until light and fluffy. Cut in pieces and wrap in waxed paper.

Puffed Rice Candy.

4 ounces brown sugar	8 ounces sweet potato sirup
1 ounce butter	1 level teaspoon salt
Little water to dissolve sugar.	

Stir and cook to a good crack, pour over 2 ounces of (hot) puffed rice, mix thoroughly and quickly, scrape the batch on to greased slab, press in a sheet about 7/8 inch thick, cut in cubes while batch is still warm, wrap in waxed paper.

(6) Smyrna figs (caprifig) from California, Crop Physiology and Breeding Investigations, Bureau of Plant Industry.

Smyrna figs are figs of the drying type, grown about Smyrna in Asia Minor and also in California. This type of fig sets no fruit unless the flowers are pollinated by a minute wasp -- the so-called fig insect -- which carries the pollen from the caprifig to the cultivated Smyrna fig when in flower. The insect was introduced into California by the Department of Agriculture in the spring of 1899, and caprifig orchards were established by the Bureau of Plant Industry in order to enable Smyrna fig growers to be sure of a supply of the indispensable fig wasp when their orchards came into bearing. The present production is about 500 cars a year and is rapidly growing. Thousands of acres of new plantings of Smyrna figs are being made every year.

These sample figs are of the Lob Ingir variety, sometimes called Calimyrna, and are grown at Fresno, California and cured by the best California process perfected by Mrs. Fred Hansen.

(7) Cane sirup, Carbohydrate Laboratory, Bureau of Chemistry.

The samples of cane sirup exhibited were prepared by a process developed in this Department for the purpose of preventing crystallization of sugar and fermentation. Many cane sirup producers have difficulty in producing a satisfactory grade of sirup owing to "graining" or crystallization of sugar. This may be prevented by partially inverting the sugar of the sirup, i.e., partially transforming it into dextrose and levulose, the constituent sugars of sucrose. In the method developed



by the Department such inversion is accomplished by the use of invertase, an enzyme or so-called ferment contained in yeast. A suitable extract of yeast is prepared and added in correct proportion to the half finished cane sirup. After being allowed to stand for a certain length of time in order that the necessary inversion by invertase may be accomplished, the semi-sirup is finished to sirup by evaporating in the usual manner. Sirup prepared as indicated may be concentrated to a higher density than sirup prepared in the ordinary manner, since after partial inversion of the sugar there is no danger of crystallization. By concentrating to a high density, for instance 42°Baume (measured at 60°F.), the danger of fermentation is very greatly reduced. Since sirups of such high density do not readily undergo fermentation, inversion of sugar by means of invertase, therefore, prevents crystallization and at the same time renders it possible to concentrate the sirup to such a high density that danger of fermentation is practically eliminated. The above method was demonstrated by the Department during the cane sirup season of 1920 in the sirup producing sections of the South. The method is described in a mimeographed circular entitled "Manufacture of Sugar Cane Sirup so as to Prevent Crystallization and Fermentation", copies of which are on the exhibit table.

There are also exhibited samples of cane sirup prepared from cane juice which has been clarified by the use of kieselguhr or infusorial earth. The method of using kieselguhr for the purpose of clarification was developed in this Department and is described in Department of Agriculture Bulletin No. 921, copies of which are also on the exhibit table. The use of kieselguhr as a clarifying agent avoids the necessity for skimming and thereby eliminates the waste incidental to the use of the

skimming process.

Copies of Department Circular 149, "Cooperative Cane-Sirup Canning" are also for distribution on the exhibit table. There are no exhibits connected with this publication.

(8) Sweet potato sirup, Fruit and Vegetable Utilization Laboratory,  
Bureau of Chemistry.

The Bureau of Chemistry has developed a method of converting sweet potatoes into sirup through the use of malt. In producing this sirup the potatoes are washed and trimmed, cooked, mashed into a pulp and treated with a small proportion of malt. The mushy mass which results is then pressed and the liquid produced evaporated into sirup. Any of the common varieties of sweet potatoes may be used. The yields of sirup is 1.6 gallons per bushel of sweet potatoes taken. The pulp which remains after the liquid has been pressed may be dried if desired, the dried weight amounting to about 5 per cent of the potatoes. This dried pulp may be used as stock feed.

Work is now being done by the Bureau to determine the manufacturing cost and the market value of the sirup. As in Southern sweet potato producing sections as much as 50 per cent of the crop consists of strings and jumbos which are now without value except as hog feed, and as these strings and jumbos make just as good sirup as market stock, manufacture of sweet potato sirup is considered by many to be of great value to our sweet potato industry. Sweet potato sirup when clarified, is of about the same color as cane sirup, and, like many other sirups can be used in cooking and candy making with good results.

The candy exhibited for this occasion is made from sweet potato sirup.

(9) Dehydrated Fruits and Vegetables, Dehydration Division,  
Bureau of Chemistry.

The dehydration laboratory investigates the drying of fruits and vegetables on a commercial scale. The object of these investigations is to improve the quality of the products now offered on the market by improving the methods used in commercial drying plants.

Dried fruits are a well known article of food, but the quality of the products now on the market can be much improved. More than 75 per cent of our fruits are sun dried. While the sun dried products are good food, nevertheless, owing to the method of drying, the flavor and appearance of the products are generally somewhat different from the flavor and appearance of the fresh fruit. Fruits have been dried by artificial heat for many years in some sections where, owing to the climate, sun drying is impractical on a commercial scale. The methods used for drying with artificial heat, however, have in many cases been very crude and the products were really very little better than the sun dried fruits. Fruits dried by improved methods by the aid of improved equipment, retain the characteristic flavor and appearance of the fresh product. Artificial heat must, of course, be used to evaporate excess water from the fruit. By improved methods of handling and improvements in drying equipment, it is possible to produce dried fruits which closely approximate the fresh product in flavor and appearance. The "dehydrated" fruits as the better grades of dried fruits are now designated, are fully equal in flavor and appearance to canned fruits and approximately equal to the fresh product, and have the further advantage of being in a very concentrated form, making the cost of transportation much less.



The drying of vegetables received a great impetus during the war when quantities of these products were needed for overseas shipment. Numerous difficulties, however, were experienced in obtaining products of proper quality. In many cases the quality of the products was injured during the drying. In other cases the products would spoil after packing. By improvement of commercial practices, it is possible to produce dried vegetables which closely approximate the fresh or canned material in flavor and food value.

(10) The Dasheen, the Chayote, the Jujube, Office of Foreign Plant and Seed Introduction, Bureau of Plant Industry.

The Dasheen.

This is a Southern root vegetable of high food value, originally from China, but directly from the Island of Trinidad, West Indies.

It has a flavor somewhat like that of the chestnut. It may be cooked as are potatoes, - baked, boiled, fried, scalloped, as "saratoga chips", etc. It is delicious in dressing for fowl. It is drier than the white potato. It makes a good stock feed.

It is grown in rich sandy loams and in drained muck soils. It requires plenty of moisture and a growing season of seven months. The dasheen yields up to 400 bushels per acre. It is adapted to commercial culture in the Coastal Plain region from Southeastern Texas to South Carolina.

The Chayote.

This is a cucurbit of rampant climbing habit, from the highlands of Guatemala and adjacent territory, where it forms one of the principal foods of the people. It can be grown successfully as far north as Charleston, South Carolina. Indeed, it has been known to fruit as far

north as Washington when autumn frosts came late.

The most striking characteristic of the chayote is its texture, rather than its flavor. This characteristic renders possible the preparation of a remarkable number of delicious dishes with the chayote prepared in a variety of ways: creamed, fried, as fritters, stuffed, au gratin, baked with meats, in stews, in pickles, as preserves, as a sauce resembling apple sauce, etc.

#### The Jujube.

This is an important Chinese fruit tree. It is adapted for cultivation throughout the Southern States and California, especially in the drier sections.

The processed fruits rival the date; and by some people are considered superior to even the best date varieties.